

Although it was raining on the twelfth day, the nestlings began to climb out of their nest. The parents encouragingly chirped to them, a few feet away. I put the first one back. Although I had handled it every day while weighing it, now it screamed with fear. The parents forgot their timidity and flew down angrily close to my head, making a queer clicking noise. It was useless to try to prevent these little wanderers from leaving the nest. Although weather conditions were unfavorable, and they could not fly, they had to leave. The nest cycle of twelve days had been completed.

THE DISTRIBUTION OF NUTTALL'S SPARROW IN CALIFORNIA.

BY CARL L. HUBBS.

DURING the months of May, June, and July, 1916, the writer was engaged in a collecting trip along the central California coast. During the trip observations were repeatedly made on *Zonotrichia leucophrys nuttalli*, as it soon became apparent that the peculiarly restricted distribution of this sparrow had not received the full attention that its significance deserves. These detailed records are briefly presented, as they are used to establish and justify the generalizations that follow.

This White-crowned Sparrow breeds in the humid region along the Pacific Coast, occupying an area south of that inhabited by *Z. l. gambeli*. The latter subspecies migrates southward to California in large numbers, whereas *Z. l. nuttalli* undertakes no extensive latitudinal migration, merely occupying a slightly wider range during the winter months than in the breeding season.

DEFINITE RECORDS.—Dr. Grinnell has recorded the status of *Zonotrichia leucophrys nuttalli* in California as follows: "Common resident of the narrow humid coast belts";¹ "breeds south from Humboldt Bay through the San Francisco and Monterey Bay

¹ Grinnell, Pacific Coast Avifauna, 3, 1902, p. 52.

regions, regularly at least to Port Hartford . . . sparingly to Santa Barbara. Occurs scatteringly in winter beyond these limits, interiorly to McCloud River" and the San Joaquin Valley, "and southerly to Los Angeles" and vicinity; there has also been noted "a regular local migration within Marin County from the seacoast, where it breeds abundantly, to the interior, as at San Geronimo, where it winters plentifully."¹ It also winters abundantly in its breeding zone, for instance near Monterey.

Z. l. nuttalli occurs on the terrace between the hills of the San Francisco Peninsula and the sea. Near Monterey it bred abundantly in the tree lupines about Point Pinos before the improvement of this area; it entered the pine forests only in the open places near their coastwise margins. Along the southern shores of Monterey County the mountains of the Coast Range rise precipitously from the sea,—here our sparrow is "abundant in the narrow belt of yellow lupine (*Lupinus arboreus*) which lies along the coast from Monterey to San Carpojo [in northernmost San Louis Obispo County]. Also found as far inland as the blue lupine extends, which is sometimes two or three miles up the canyons on the shady side. Found nowhere else."² At one point along this rugged coast there is a terrace, about a half mile wide, between the cliffs and the mountains; this terrace is called "Pacific Valley," because it is the only level land in the region. A post office called Gorda is situated here, and at this secluded place the writer had the good fortune to observe Nuttall's Sparrow in the height of its breeding season, when its pleasant little song added life to the rough shore line. Although time did not permit searching for them, a number of fresh nests were stumbled onto at the edge of the cliffs: May 17, one nest with three, and one with two eggs, both placed between one and two feet from the ground in thick clumps of sage (*Artemisia californica*); May 18, one nest with two eggs, and another with two newly hatched young and one egg, both placed lower than two feet in sage; lastly a nest with two eggs, located two feet high in a blue lupine. This sparrow was entirely absent from the slope of the adjacent mountains, even at their bases, whether timbered or not (May 19).

¹ Grinnell, *ibid.*, 11, 1915, p. 117.

² Jenkins, *Condor*, 8, 1906, p. 128.

Further observations were made on this White-crowned Sparrow south of Monterey County during the summer, and while no fresh nests were found, it was abundant in all suitable localities southward to Point Conception. That the species was actually within its breeding range wherever found is evident from the following facts. The records were all taken before the end of July, and it is doubtful if migration *en masse* had occurred, especially as the subspecies makes no extensive migrations at all. The sparrow was not observed back of its breeding zone, nor on the narrow barriers which cut its range at several points, thus indicating that the breeding area was still being occupied. Finally at the various southern record stations to be given, both adults and half-grown young were seen; the bob-tailed young near Point Arguello, for instance, could hardly have moved far south along the wind swept coast. The following records then, are doubtless all within the breeding records of the subspecies.

Many individuals were seen in the sandy *Artemisia-Lupinus* belt about Piedras Blancas (May 31), but none were found near-by where the coast line is hilly (June 1-5), and none were seen in the pine forests near Cambria (May 29). Adults and half-grown birds were plentiful in the sand dune region just north of Morro Rock, but absent in the marshy area about the mouth of Morro Creek; at the town of Morro they were seen busily picking up scraps about the wharves and the huts of the fishermen, who are well acquainted with the bird; both adults and half-grown young were further abundantly observed on the sage covered plain skirting the east shore of Morro Bay, north of the marshy mouth of Los Osos Creek; they were not found on the adjacent hill-slopes (June 6-9).

The record-stations given in the preceding paragraph are in San Luis Obispo County. From the same county Willett¹ has published a note on this form. He wrote: "The commonest of the smaller land birds was the Nuttall Sparrow (*Zonotrichia leucophrys nuttalli*) which was breeding abundantly in the low brush from the water's edge to a mile or more back into the hills and canyons" (near Port Hartford). The writer observed the species in the same locality but did not find it in the hills (May 23-29). It was

¹ Condor, 11, 1909, p. 185.

apparently breeding along the edge of the cliffs between Port Hartford and Pismo (May 24). Both adults and half-grown were common at Oceano in the sandy regions, among the "forests" of blue lupine which attain here a height of 6 to 8 feet (June 11-12).

The hilly coast line about Point Sal (June 14-17) cuts in two the range of this bird, which appears again in the sand dunes a few miles further south, near the station Casmalia, Santa Barbara County (June 14). At Surf (Lompoc Junction), this sparrow is very common in the sand dunes and along the tracks of the railroad (June 18, 22); it is also common at Arguello station near Point Arguello where young with rectrices but half developed were seen (June 19-21); they are absent in such places as the high cliff "Espada" near Sudden.

About Point Conception *Z. l. nuttalli* is the commonest bird on the terrace between the hills and the wave swept cliffs; among those seen were a number of young of the year (July 13-17).

Just around Point Conception, the rolling hills, rising from the shore line to the mountains, form the terminal barrier to the distribution of the species. A single summer record has been published, based on observations made farther to the east or south. Bowles¹ noted two pairs near Santa Barbara: "One pair was feeding some bob-tailed young, evidently newly out of the nest, while the second pair showed every evidence of having a nest, though we failed to locate it." Had Mr. Bowles been near Point Conception, only forty miles east, he could have found not only two, but a hundred or more pairs. The writer spent a whole day (July 8) searching the various types of habitat between the shore and the foothills near Santa Barbara, and failed to find a single individual of the species. Its absence was still more striking along the coast near Goleta, for here its favorite breeding grounds, sandy soil overgrown with sage, and some (rather low) blue lupines, were wholly unfrequented by the sparrow, although scarcely more than thirty miles away it was abundant. Similar observations were made at numerous other points along the entire Channel coast south to middle Ventura County (June 23-July 12).

¹ Auk, 28, 1911, p. 174 (the only definite record the writer has found, based on observations south of Port Hartford, San Luis Obispo County).

SUMMARY AND CONCLUSION.—One may stand on Point Conception with Nuttall's Sparrows hopping about almost at his feet and look eastward along the Channel shore which harbors only rare stragglers of that bird; he may then turn northwest toward the splendid coast line which curves out to the headland of Point Arguello and see other abundantly populated habitats of the subspecies. Such sights impress one with the reality of the problems of distribution.

Zonotrichia leucophrys nuttalli, as its relatively dark colors and small size indicate, is an inhabitant of the humid coast in California. Many subspecies of birds with these common characters, as is well known, are confined to this belt. These other birds, however, have a range less restricted *transversely*, because they dwell in the forests¹ covering the coastwise hills and mountains, but more restricted *longitudinally*, for these forests of the coast area of the transition zone extend southward only to Cambria, the "City of the Pines" in northern San Louis Obispo County. Nuttall's Sparrow, on the other hand, shuns the forest and dwells along the wind-swept coast, nesting near the ground in low plants. It is usually commonest in sandy regions, and is closely associated with certain plants, particularly the large lupines and the sage-brush. In certain canyons the Sparrow is recorded as ranging inland during the breeding season as far as two or three miles, but we did not find it so far back; elsewhere it is confined to the coast line — the sand dunes and the first terrace above the cliffs — seldom occurring as far inland as a mile, and seldom higher than about three hundred feet above the sea. In brief, the distribution of *Z. l. nuttalli* in California may be regarded as practically linear.² It does not inhabit the hillsides, and its range is divided at many points where the waves cut directly into the hills. It also shuns all marshy ground, and is replaced here by Song Sparrows (*Melospiza melodia*, subsp.), the distribution of the two being notably complementary.

Though its range is restricted so closely, *Z. l. nuttalli* is uniformly the dominant bird in its particular habitat during its breeding

¹The marsh-inhabiting land birds, such as the Song Sparrows, have also notably narrow ranges, but their nearest relatives, unlike those of Nuttall's Sparrow, are found in the adjacent highlands.

²In Washington, Nuttall's Sparrow has a much wider breeding range than in California.

season, at least along the California coast south of San Francisco. The species continues abundant along the coast south to Point Conception, where its range ends almost as abruptly as though this promontory were the 'Land's End' of California, instead of a sharp angle in a continued coast line.

The cause of this sudden termination of the distribution of Nuttall's Sparrow is not hard to postulate, when we recall that this subspecies has the characters of birds frequenting humid regions. The outer coast of California is swept by moisture laden winds, causing fogs to form continually during the summer on the hills. These winds blow hard across Point Conception almost uninterruptedly during the spring and summer months, but cease just around the Point, where the famously sunny climate of Santa Barbara is encountered, and there the range of *Zonotrichia l. nuttalli* is abruptly terminated.

THE LIMICOLÆ OF THE STATE OF WASHINGTON.

BY J. H. BOWLES.

APOLOGIES are seldom in good order when presenting a subject for scientific consideration, but the writer of this paper feels that something of the kind is necessary, perhaps, to justify him for offering the following more or less fragmentary notes. However, this most interesting family of birds has, of necessity, received so little attention in this northwestern corner of the United States that what little has been obtained may seem worthy of placing on record.

For one reason or another it has seemed best to omit practically all of the older records, the data here given being made up from either the personal observations of the writer, or from specimens concerning which he feels absolutely positive. Unless otherwise specified, all of these notes come from the west, or ocean side, of the Cascade Mountains, the counties of Chehalis, Clallam, Jefferson, and Pacific bordering on the Pacific Ocean itself. Tacoma, in